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Graduates, families, faculty, and friends:

I am a lapsed physician now often asked, as a result of my current job, to comment at ceremonies that mark the making of new physicians. Because I no longer hold a license to practice medicine---the activity that is understandably most important to the graduates---I usually find myself reaching hard to find common ground. When I try to emphasize my own obsession---the importance of research for the future practice of medicine---I tend to connect more forcefully to the recipients of the Ph.D. degree, whose presence at these ceremonies I therefore especially welcome. I have also tried, with perhaps greater success, to think aloud about medical science as depicted in our favorite television show, or to talk about my new passion to use science to fight malaria in Africa.

But for today's event, I think I have finally found a theme that we must surely confront together. This theme recurs in my life, as it is likely to do in yours, in the form of questions that we ask ourselves.

- Why is it, the question might go, that a substantial part of the public, including some very intelligent and well-informed people---close friends and relatives, too---believe that the modern, effective, science-based medicine that you will practice is driven inappropriately by technology,

focused on toxic therapies, resistant to unorthodox methods, and oblivious to the preventive principles of healthy living?

- Why is the medical profession so often labeled with terms usually reserved for dictators? For example, in a recent article about the new wave leaders of “popular medicine” in The New Yorker magazine, Malcolm Gladwell describes what he calls their “basic tenet: that the system of health care devised by doctors and drug companies and hospitals is close-minded, arrogant, and paternalistic....”

- In my obligatory rounds of Washington social life, why do I so frequently encounter well-intentioned people who think that the most important work being done by my \$13 billion dollar agency, with its amazing array of laboratory and clinical science, is being carried out by a small coordinating unit called the Office of Alternative Medicine?

Let me give you a few other examples of recent events and readings that prompt me to ask such questions.

First vignette. I am sitting with a group of mostly liberal Congressmen who are strong advocates for the Office of Alternative Medicine. One of them tells me that the public is fed up with the high tech medicine produced by NIH research and that he did more for public health as the mayor of a small city by building bike paths. Let's ignore the fact that I take pride from riding my bike twelve miles to work most days. Would it surprise him to know that most physicians and scientists are firm proponents of exercise and low-fat diets? And that the evidence that encourages us to practice and advocate these behaviors is the product of science that NIH has supported over many years?

A second example: The bearded, cherubic face of Dr. Andrew Weil is smiling at me from the cover of Time magazine. I read the long story and, later, one of his books. He seems to have a calculated naivete about the cases featured in his writings, but his central message can offend no one: the body often heals itself. When it cannot (for example, when it is assaulted with trauma, life-threatening infection, or cancer), he says: take the patient to a real doctor. When it can, he says: give the patient a massage or home-grown fruits, vegetables, and herbs. Why is this message received as such a profound challenge to conventional medicine? It is what most of us wish for ourselves. Of course, our list of what can be and should be treated is a lot longer than Dr. Weil's. But is there a doctor in the house, new or old, who does not adhere, more or less, to this creed?

Indeed, the lesson of self-healing is one of the first triumphs of evidence-based medicine. In his book, The Fragile Species, Lewis Thomas pointed out that the 19th century retreat from purges and leeches occurred when these treatments were objectively compared with the strategy of allowing even serious illness take its natural course.

A third example, one that takes up the issue from a different perspective. In the past few weeks, the public has been bombarded by the proclamations of John Bailar and Heather Gornik, two Chicago-based epidemiologists. They have argued that the War on Cancer, a product of mainstream medical science, has been a nearly total failure, because it has focused on treatment instead of prevention. To make these claims, they trivialize the recent decline in cancer mortality rates, the improved well-being of patients with cancer, the dramatically changed prospects for children with cancer, and the many encouraging signs of continued scientific progress. Importantly for today's talk,

they imply that the NIH and modern medicine are inherently biased towards therapies, which, they say, are hurtful and not very helpful, and against strategies for prevention, which are beneficial and harmless.

To seize this moral high ground, they largely ignore the NIH's huge current investment in prevention research and the past investments that established the roles of tobacco, sunlight, other environmental agents and genes in the causation of cancer. They have, nevertheless, been at least partly successful in making their case, because a significant portion of the public receives their arguments in a broader context---a context in which standard medicine is toxic, technical, and therapy-oriented, while the alternative is benign, simple, and preventive.

Why in these several settings has the medical profession been placed in this defensive position, cast in the role of the heavy, and deprived of any appearance of good sense? Why does there appear to be a widening gulf between practitioners of conventional medicine and advocates of what are considered alternative approaches to health? And why is there a perception that people outside your new profession are taking---or being accorded---the credit for qualities that have historically been prized by the medical profession: sympathy, patience, curiosity, openness to novelty, even skepticism and critical thinking?

How have we reached this state of affairs? One of my colleagues at the NIH, Dr. William Harlan, believes that physicians' attitudes have recently been reshaped by our expanded understanding of disease mechanisms. Consider what happens when a patient comes to a doctor with a symptom. For the doctor, the issue may be: can I explain the symptom by diagnosing a disease, perhaps one that I

know how to treat? If no such diagnosis can be made, the patient may get the wrong message: the symptom has no recognizable basis, and thus he should not have come. A better message might be: happily, your symptom doesn't appear to be caused by a serious illness, but here is some advice for ways to feel better until it goes away by itself. And here is yet more advice about ways to continue to feel better---and perhaps even reduce the risk of serious illness---in the future.

The time it takes to do this is a vanishing commodity. This has been obvious in the hospital setting for some time. Lewis Thomas wrote years ago about how "the sick person perceives the hospital as an enormous whirring machine, with all the professionals....out in the corridors at a dead run....Everyone, even the visitors, seems pressed for time." Now, especially in some parts of the managed care industry, the same sense of urgency is invading clinics and offices, where the initial encounters of patients and doctors occur. How likely is it that these encounters will be satisfactory under such circumstances? Where will patients go for the attention they cannot get from mainstream medicine?

The evidence clearly shows that they are already seeking alternatives in large numbers. In a landmark study, David Eisenberg reported that over 60 million Americans sought help from various kinds of alternative practitioners in 1990, spent nearly \$14 billion on so-called alternative remedies, and usually failed to mention them to their regular doctors.

My point today is not to judge the value of the many alternative therapies, which vary from the reasonable to the absurd. Instead, I am concerned with the idea that health care in this country is being served by two cultures. Ours has the scientific record of accomplishment, but the

other is acquiring enormous public support---even getting the credit for many preventive, behavioral, and low-tech methods that mainstream medical science introduced and validated.

Here are some of the things I think we need to do, as a profession and as a nation, to improve our approach to health:

- Eliminate the divide between alternative and conventional. Let's adopt another mind-set: there are methods that work and methods that don't. Or methods that have been properly tested, so we know whether they work, and those that have not. Let's eschew simple labels. For example, "herbal" and "botanical" do not mean "unconventional": think of all the mainstream medicines---digitalis, quinine, vincristine, taxol, and many others---that come from plants.
- Let's convince the public to adopt more uniform attitudes towards the evaluation of therapies and preventive strategies---evaluations based on rigorous evidence. Let's replace the uncertainty of anecdote with the power of clinical trials. Let's use modern chemistry to identify the active ingredients in promising ethnopharmacological agents and then test them in the same way we would test synthetic agents designed by structural biologists.
- The body politic needs to recognize the existence of a dual standard in the country's approach to regulation of medication. Excepting the few inevitable dogmatists, most people do want to know what works. But current laws allow sales of many expensive and potentially harmful substances without the demonstration of efficacy and safety that we require for most products of our pharmaceutical

industry. Ironically, some of the people who insist on the availability of such herbal remedies and dietary supplements, including potent over-the-counter agents such as ephedra and melatonin, now want the NIH, rather than those who are making profits from the manufacture and sales of these agents, to find out what works. Given the thousands of preparations on the shelves, this is clearly an impractical task for the NIH.

- Let's make a greater effort to revive the traditional non-technical skills of mainstream doctors and engender a tolerance for patient autonomy, including a prominent role for patients in decision-making. Despite the negative comments about physicians that I quoted earlier, there are many signs that such a revival is occurring, especially here in California.

- Finally, let's be more aggressive about describing both the benefits and limits of preventive practices. Mainstream medicine can be proud of vaccines, sound nutrition, exercise regimens, smoking cessation, and protected sex---they are among the best products of a science that has in the past century linked many diseases to their causes. At the same time, we need to recognize that prevention is imperfect. We don't know the causes---or don't know how to avoid the causes---of most diseases. Good habits are not enough: even athletes get sick. Patients should not be blamed, or made to feel guilty, for their illnesses. And we do have many things that work well when patients do get sick---and more remedies are on the way.

As Malcolm Gladwell says in his New Yorker piece, "to read the health books on the best-seller lists right now is to be left with the impression that exercise and a good diet are all that matter---that medicine is too ineffectual to help us if we do not first help ourselves."

Clearly, we need to move beyond this. With your help, I believe we can.

Thank you, congratulations, and good luck.